

I. CATALOG INFORMATIONA. Discipline: MATHEMATICSB. Subject Code and Number: MATH M01BC. Course Title: Elementary Algebra Part B

D. Credit Course units:

Units: 2Lecture Hours per week: 2Lab Hours per week : 0Variable Units : No

E. Student Learning Hours:

Lecture Hours:

Classroom hours: 35 - 35

Laboratory/Activity Hours:

Laboratory/Activity Hours 0 - 0**Total Combined Hours** in a 17.5 week term: 35 - 35

F. Non-Credit Course hours per week _____

G. May be taken a total of: 1 2 3 4 time(s) for creditH. Is the course co-designated (same as) another course: No Yes

If YES, designate course Subject Code & Number: _____

I. Course Description:

Covers polynomials, rational expressions, and integer exponents. Also includes square roots and radical expressions, and quadratic equations and the quadratic formula.

J. Entrance Skills

*Prerequisite: No Yes Course(s)

MATH M01A or placement as determined by college's multiple measures assessment process.

*Corequisite: No Yes Course(s)

Limitation on Enrollment: No Yes

Recommended Preparation: No Yes Course(s)

Other: No Yes

K. Other Catalog Information:

This course is the second part of a two-semester course sequence: MATH M01A and MATH M01B. Completion of both courses is equivalent to MATH M01. Unit credit may be received for either MATH M01 or (MATH M01A and MATH M01B, or MATH 04A), but not both.

II. COURSE OBJECTIVES

Upon successful completion of the course, a student will be able to:

		Methods of evaluation will be consistent with, but not limited by, the following types or examples.
1	simplify expressions involving integer exponents using exponent rules and definitions including the product, quotient, power rules for exponents, and the definitions of zero and negative exponents.	Graded work and exams.
2	convert a number written in standard notation to scientific notation and vice versa.	Graded work and exams.
3	determine the degree of a polynomial.	Graded work and exams.
4	simplify, add, subtract, multiply, and divide polynomials.	Graded work and exams.
5	factor out the greatest common factor (GCF) of a polynomial.	Graded work and exams.
6	factor a polynomial with four terms by grouping.	Graded work and exams.
7	factor trinomials.	Graded work and exams.
8	factor a difference of two squares.	Graded work and exams.
9	solve quadratic equations by factoring.	Graded work and exams.
10	reduce rational expressions to lowest terms.	Graded work and exams.
11	multiply, divide, add, and subtract rational expressions.	Graded work and exams.

III. COURSE CONTENT

Estimated %	Topic	Learning Outcomes

Lecture (must total 100%)		
30.00%	A. Exponents and Polynomials 1. Exponent rules 2. Zero and negative exponents 3. Scientific notation – conversion to and from standard notation 4. Terminology of polynomials and the degree of a polynomial 5. Simplification of polynomials 6. Addition and subtraction of polynomials 7. Multiplication of polynomials 8. Division of polynomials	1, 2, 3, 4
30.00%	B. Factoring 1. Factoring out the greatest common factor 2. Factoring a polynomial with four terms by grouping 3. Factoring trinomials 4. Factoring a difference of two squares	5, 6, 7, 8
30.00%	C. Rational Expressions 1. Reducing rational expressions 2. Multiplication and division of rational expressions 3. Addition and subtraction of rational expressions	4, 5, 6, 7, 8, 9, 10, 11
10.00%	D. Quadratic Equations 1. Solving quadratic equations by the factoring method	5, 6, 7, 8, 9
	Enrichment topics related to the study of MATH M01B may also be presented by the instructor, if time allows.	

IV. TYPICAL ASSIGNMENTS

A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:	
1	homework problems selected from the textbook which require written explanations of the solution, such as stating the solution of a word problem requiring factoring a polynomial.
2	graded assignments: in-class and/or homework assignments, such as expressing features of polynomials such as the degree of a polynomial or indicating its number of roots.
3	written explanations to solutions on a problem solving exam, such as expressing why a quadratic equation has two roots, one root or no roots.

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	assigned reading material from the textbook, such as viewing examples of the simplification of expressions with exponents.
2	assigned homework problems selected from the textbook, such as practice sets on factoring polynomials and determining solutions to polynomial equations.
3	additional problem sets provided by the instructor, such as practice sets on simplifying rational expressions.
	graded problem solving assignments, such as problem sets on simplifying radical

4	expressions.
5	group or individual projects, such as identifying examples of measurements requiring scientific notation of very large values, or very small numbers that occur in physics, biology, astronomy or other natural sciences.

C. Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not limited to:	
1	apply analytic techniques for solving mathematical and application problems, such as factoring polynomials by factoring out the GCF, identifying factoring forms, and completely factoring trinomial forms.
2	compare and contrast methods of solution to mathematical problems, such as ways to solve a quadratic equation by factoring.
3	describe and apply the algorithmic steps for obtaining the solution to a mathematical problem, such as applying the proper steps in simplifying radical expressions.

V. METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

- Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)
- Lecture/Discussion
- Laboratory/Activity
- Other (Specify)
Introductory lectures to new concepts; review material from previous topics as related to the current topic; provide detailed step-by-step examples; provide practice problems to develop proper mathematical skills and techniques; provide student interaction for questions and answers; use projects and/or group work to enhance student understanding of the concepts; and discuss application problems, such as applications of scientific notation for expressing numerical values that occur in the sciences, such as biology, astronomy, chemistry, or physics.
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- Optional Field Trips
- Required Field Trips

VI. METHODS OF EVALUATION

Methods of evaluation may include, but are not limited to:

- Essay Exam Classroom Skill Demonstration

- | | | | | | |
|-------------------------------------|----------------------|-------------------------------------|-------------------------|-------------------------------------|-----------------|
| <input type="checkbox"/> | | <input type="checkbox"/> | Discussion | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> | Problem Solving Exam | <input type="checkbox"/> | Reports/Papers/Journals | <input checked="" type="checkbox"/> | Participation |
| <input checked="" type="checkbox"/> | Objective Exams | <input checked="" type="checkbox"/> | Projects | <input checked="" type="checkbox"/> | Other (specify) |

Quizzes and/or graded work will be used to evaluate students for the critical thinking skills needed to solve math problems.

Problems must require students to demonstrate analytic skills and the step-by-step details required for the solution, such as identifying all steps in completely factoring a polynomial expression.

VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

Martin-Gay, Elayn. Beginning Algebra. 7th ed. Pearson, 2016.

Blitzer, Robert F. Introductory Algebra for College Students. 7th ed. Pearson, 2016.

Kaufmann, Jerome E., and Karen L. Schwitters. Elementary Algebra. 10th ed. Brooks Cole, 2014.

VIII. STUDENT MATERIALS FEES

No Yes

IX. PARALLEL COURSES

College	Course Number	Course Title	Units
Ventura College	MATH V11B	Elementary Algebra: Second Half	3
Los Angeles City College	MATH 114	Elementary Algebra B	3
El Camino College	MATH 43	Extended Elementary Algebra, Part II	3

X. MINIMUM QUALIFICATIONS

Courses Requiring a Masters Degree:
 mathematics or applied mathematics OR Bachelor's in either of the above AND Master's in statistics, physics, or mathematics education

XI. ARTICULATION INFORMATION

A. Title V Course Classification:

1. This course is designed to be taken either:

- Pass/No Pass only (no letter grade possible); or
 Letter grade (P/NP possible at student option)

2. Degree status:

Either Associate Degree Applicable; or Non-associate Degree Applicable

B. Moorpark College General Education:

1. Do you recommend this course for inclusion on the Associate Degree General Education list?

Yes: No: If YES, what section(s)?

- A1 - Natural Sciences - Biological Science
- A2 - Natural Sciences - Physical Science
- B1 - Social and Behavioral Sciences - American History/Institutions
- B2 - Social and Behavioral Sciences - Other Social Behavioral Science
- C1 - Humanities - Fine or Performing Arts
- C2 - Humanities - Other Humanities
- D1 - Language and Rationality - English Composition
- D2 - Language and Rationality - Communication and Analytical Thinking
- E1 - Health/Physical Education
- E2 - PE or Dance
- F - Ethnic/Gender Studies

C. California State University(CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU? Yes: No:

2. If YES do you recommend this course for inclusion on the CSU General Education list?

Yes: No: If YES, which area(s)?

- A1 A2 A3 B1 B2 B3 B4
- C1 C2 D1 D2 D3 D4 D5
- D6 D7 D8 D9 D10 E

D. University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC? Yes: No:

2. If YES do you recommend this course for the Intersegmental General Education Transfer Curriculum (IGETC)? Yes: No:

IGETC Area 1: English Communication

- English Composition
- Critical Thinking-English Composition
- Oral Communication

IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

- Mathematical Concepts

IGETC Area 3: Arts and Humanities

- Arts
- Humanities

IGETC Area 4: Social and Behavioral Sciences

- Anthropology and Archaeology

- Economics
- Ethnic Studies
- Gender Studies
- Geography
- History
- Interdisciplinary, Social & Behavioral Sciences
- Political Science, Government & Legal Institutions
- Psychology
- Sociology & Criminology

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

- Physical Science Lab or Physical Science Lab only (non-sequence)
- Physical Science Lecture only (non-sequence)
- Biological Science
- Physical Science Courses
- Physical Science Lab or Biological Science Lab Only (non-sequence)
- Biological Science Courses
- Biological Science Lab course
- First Science course in a Special sequence
- Second Science course in a Special Sequence
- Laboratory Activity
- Physical Sciences

IGETC Area 6: Language other than English

- Languages other than English (UC Requirement Only)
- U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)
- U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

XII. REVIEW OF LIBRARY RESOURCES

- A. What planned assignment(s) will require library resources and use?

The following assignments require library resources:

Use of textbooks on reserve. Use of library resources, both print and online, to research examples of quadratic and other polynomial relationships that occur in real life; or researching examples of real life uses of scientific notation of values that occur in the natural sciences and other fields.

- B. Are the currently held library resources sufficient to support the course assignment?

YES: NO:

If NO, please list additional library resources needed to support this course.

XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

Requisite Justification for MATH M01A

- A. Sequential course within a discipline.
1. determine whether a number satisfies a given equation in one variable.
 2. solve first-degree equations in one variable and check the solution.
 3. solve applied problems involving first-degree equations in one variable.
 4. solve first-degree inequalities in one variable.
 5. solve applied problems involving first-degree inequalities in one variable. (optional*)
 6. find the x- and y-intercepts of the graph of a linear equation.
 7. find the slope of the line passing through two given points.
 8. determine the slope of a line given its graph.
 9. graph a linear equation.
 10. simplify and evaluate algebraic expressions.
 11. identify an equation as either conditional, a contradiction, or an identity.
 12. determine the slope and y-intercept of a line given its equation.
 13. write an equation for a line given two points or given one point and the slope.
 14. solve systems of linear equations using each of the following methods: graphing method, addition (elimination) method, and the substitution method.
 15. solve application problems by solving a system of linear equations in two variables.
- B. Standard Prerequisite or Corequisite required by universities.
- C. Corequisite is linked to companion lecture course.
- D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____
- E. Prerequisite or Corequisite is necessary to protect the students' health and safety.

- F. Computation or communication skill is needed.
- G. Performance courses: Audition, portfolio, tryouts, etc. needed.

or

Requisite Justification for placement as determined by college's multiple measures assessment process.

- A. Sequential course within a discipline.
- B. Standard Prerequisite or Corequisite required by universities.
- C. Corequisite is linked to companion lecture course.
- D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____
- E. Prerequisite or Corequisite is necessary to protect the students' health and safety.
- F. Computation or communication skill is needed.
- G. Performance courses: Audition, portfolio, tryouts, etc. needed.

XIV. WORKPLACE PREPARATION

MATH M01B: Not Applicable

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

1. Mode of Delivery

- Online (course will be delivered 100% online)
- Online with onsite examinations (100% of the instruction will occur online, but examinations and an orientation will be scheduled onsite)
- Online/Hybrid (a percentage of instruction will be held online and the remaining percentage of instruction will be held onsite)
 - Lab activities will be conducted onsite
- Televideo (Examinations and an orientation will be held onsite)
- Teleconference
- Other

2. Need/Justification

Improve General Student Access.

3. Describe how instructors teaching this course will ensure regular, effective contact with and among students.

Using the Course Management System (CMS) adopted by VCCCD, instructors may engage students using the following communication activities:

Students will be required to meet with the Math Faculty member assigned to the Math Center at least twice.

Provide students with an opportunity to ask questions of fellow students and the instructor using the "discussion forum" tool provided by the CMS.

Contact students via email within the CMS, by campus email, and/or MyVCCCD.

Use the "announcement" tool to remind students of important assignments and due dates.

Provide students with an online schedule of class events using the "calendar" tool in the online CMS.

4. Describe how instructors teaching this course will involve students in active learning.

Instructors may involve students in active learning in the following activities:

Students may view video lessons and/or text-based lessons for each learning objective (created by an instructor or by a publishing company).

Students may complete homework on paper and/or using an interactive math software.

Students may test their knowledge with interactive online quizzes provided by a math software.

Students may interact with the instructor and classmates using an online discussion forum to ask questions.

Students may submit questions to the instructor by email.

Instructor may create student groups or group activities using the CMS.

5. Explain how instructors teaching this course will provide multiple methods of content representation.

The following represent the methods by which content may be provided for learning:

Live tutorials in the Math Center.

Internet-based math software.

Instructional Videos.

Textbook.

Links to online resources that may include video, quizzes, interactive math games, text explanations, and more.

6. Describe how instructors teaching this course will evaluate student performance.

Meeting with Math Faculty member assigned to the Math Center.

Complete practice problems on paper and/or in an online interactive homework system.

Complete regular online and/or math software quizzes.

Participate in online discussion forums.

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

MATH M01B: Not Applicable

XVII. STUDENT MATERIALS FEE ADDENDUM

MATH M01B: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

MATH M01B: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:

Discipline: MATHEMATICS

Discipline Code and Number: MATH M01B

Course Revision Category: Substantial Course Revision

Course Proposed By:

Originating Faculty Katrina Topolinski 11/01/2017

Faculty Peer: Rena Petrello 11/01/2017

Curriculum Rep: Daniel Rubinstein 11/03/2017

Department Chair: Phillip Abramoff 11/01/2017

Division Dean: Mary Rees 11/01/2017

Approved By:

Curriculum Chair: Jerry Mansfield 04/23/2018

Executive Vice President: _____

Articulation Officer: Jodi Dickey 04/03/2018

Librarian: Mary LaBarge 04/03/2018

Implementation Term and Year: Fall 2018

Approval Dates:

Approved by Moorpark College Curriculum Committee: 04/17/2018

Approved by Board of Trustees (if applicable): 06/12/2018

Approved by State (if applicable): 06/22/2018